

CHAPTER 8

SAFE DRINKING WATER ACT COMPLIANCE ASHORE

8-1 Scope

8-1.1 This chapter identifies requirements, establishes policy, and assigns responsibilities for the production, use, protection and conservation of drinking water at shore installations in the United States and its territories.

8-1.2 References

- a. 40 CFR 146, UIC Program: Criteria and Standards (<http://www.access.gpo.gov/nara/cfr/index.html>);
- b. U.S. Environmental Protection Agency: Preparing Your Drinking Water Consumer Confidence Report, Guidance for Water Suppliers, EPA/816-R-99-002 (March 1999) (<http://www.epa.gov/safewater/topics.html>);
- c. 40 CFR 141, National Primary Drinking Water Regulations (<http://www.access.gpo.gov/nara/cfr/index.html>);
- d. Naval Facilities Engineering Service Center: Cross-Connection Control and Backflow Prevention Program Implementation at Navy Shore Facilities, User's Guide UG-2029-ENV (May 1998);
- e. U.S. Environmental Protection Agency: Lead in Drinking Water in Schools and Non-Residential Buildings, EPA/812-B-94-002 (April 1994);
- f. Naval Facilities Engineering Command: Guidance for Sampling Water Coolers (May 1998);
- g. U.S. EPA/State Joint Guidance on Sanitary Surveys (December 1995);
- h. Naval Facilities Engineering Service Center: Naval Water Conservation Guide for Shore Activities, User's Guide UG-2017-E&U, (July 1996), (<http://navyenergy.nfesc.navy.mil/key-areas/WaterWeb.html>);
- i. MIL-HDBK-1165, Water Conservation, (7 Apr 1997) (http://www.efdlant.navfac.navy.mil/lantops_15/);
- j. American Water Works Association Manual of Standard Practices, Emergency Planning for Water Utility Management, AWWA M19 Second Edition 1984 (<http://www.awwa.org>);

8-1.3 Supplemental References

- a. 40 CFR 142, National Primary Drinking Water Regulations Implementation (<http://www.access.gpo.gov/nara/cfr/index.html>);
- b. 40 CFR 143, National Secondary Drinking Water Regulations (<http://www.access.gpo.gov/nara/cfr/index.html>);

- c. 40 CFR 144, Underground Injection Control (UIC) Program (<http://www.access.gpo.gov/nara/cfr/index.html>);
- d. Executive Order (E.O.) 13148 “Greening the Government Through Leadership in Environmental Management”, April 21, 2000 (<http://www.nara.gov/fedreg/eo2000.html>);
- e. U.S. Environmental Protection Agency: State Source Water Assessment and Protection Programs Guidance, EPA/816-R-97-009 (August 1997) (<http://www.epa.gov/safewater/topics.html>);
- f. U.S. Environmental Protection Agency: Pocket Sampling Guide for Operators of Small Water Systems: Phase I, EPA/814-B-92-001 (April 1992);
- g. U.S. Environmental Protection Agency: Pocket Sampling Guide for Operators of Small Water Systems: Phase II and V, EPA/814-B-94-001 (July 1994);
- h. U.S. Environmental Protection Agency, Office of Drinking Water: Guidance Manual for Compliance with the Filtration and Disinfection Requirements for PWSs Using Surface Water Sources, EPA570/9-89-018 (October 1989) (<http://www.epa.gov/safewater/topics.html>);
- i. U.S. Environmental Protection Agency Region III: Public Information Bulletin, UIC Class V Injection Wells, EPA/813-F-94-005 (July 1994);
- j. American Water Works Association Standards and Manuals (<http://www.awwa.org>);
- k. Naval Facilities Engineering Service Center: Consecutive Water System Guidance Document for Navy Shore Installations, Users' Guide UG-2034-ENV (January 1999);
- l. NAVMED P-5010-5, Manual of Naval Preventive Medicine, chapter 5, Water Supply Ashore (Rev 1999) (<http://www.vnh.org/PreventiveMedicine/PreventiveMedicine.html>);
- m. BUMEDINST 6240.10, A Standard for Potable Water, 19 July 1999 (<http://navymedicine.med.navy.mil/instructions/external/external.htm>);
- n. MIL-HDBK-1164, Maintenance and Operation of Water Supply Systems (3 Mar 1998) (http://www.efdlant.navfac.navy.mil/lantops_15/);
- o. MIL-HDBK-1005/7A, Water Supply Systems (1 September 1999) (http://www.efdlant.navfac.navy.mil/lantops_15/);

8-2 Legislation

8-2.1 Safe Drinking Water Act (SDWA). An amendment to the Public Health Service Act, the Safe Drinking Water Act (SDWA or “the Act”) federalized the regulation of drinking water systems. The SDWA has been amended and /or reauthorized several times since passage as Public Law 93-523 in 1974. The SDWA has been codified as Title 42 of the United States Code (USC), Chapter 6A Public Health Service, Subchapter XII Safety of Public Water Systems (42 USC 300f-300j) <http://www.access.gpo.gov/uscode/uscmmain.html>.

Among other things, the Act requires the U.S. Environmental Protection Agency (EPA) to set national standards for levels of contaminants in drinking water that may have an adverse effect on human health. The 1996 Amendments strengthened consumer right to know provisions and the multiple barrier approach to protecting water quality.

The SDWA provides for state implementation. Upon application to EPA, if a State has drinking water standards “no less stringent” than the Federal standards, “adequate” enforcement procedures, and variance and exemption conditions “no less stringent” than the Federal conditions, then the Federal Government grants the state primary enforcement authority. Today most of the States have such authority. Under the 1996 SDWA Amendments sovereign immunity has been waived and Federal facilities are subject to applicable state and local laws and regulations

8-3 Terms and Definitions

8-3.1 Action Level (AL). The concentration of lead or copper in water that is used to determine compliance with the Lead and Copper Rule. Under the Lead and Copper Rule, action levels have replaced lead and copper maximum contaminant levels.

8-3.2 Backflow Preventer. An approved device or assembly or piping arrangement (i.e., air gap) used to prevent backflow into a potable water system.

8-3.3 Community Water System (CWS). A public water system (PWS) that serves at least 15 service connections used by year-round residents, or regularly serves at least 25 year-round residents.

8-3.4 Consecutive Water System. A water system which has no water production or source facility of its own and which obtains all of its water from another water system. A consecutive water system may be further classified as any of the water system types shown in Figure 8-1. As an example, Section 8-3.5 defines a Consecutive Public Water System.

8-3.5 Consecutive Public Water System. A water system which has no water production or source facility of its own and which obtains all of its water from another water system and also meets the definition of a public water system.

8-3.6 Consumer Confidence Report (CCR). This report provides water quality information to consumers. The report must contain mandatory information and be delivered to customers by 1 July every year.

8-3.7 Consumer. Any person served by a PWS. Human consumption includes drinking, bathing, showering, cooking, dishwashing, and maintaining oral hygiene.

8-3.8 Customer. A billing unit or service connection to which water is delivered.

8-3.9 Consumptive Use Permit (CUP). A permit that regulates the withdrawal of groundwater.

8-3.10 Cross-Connection. Any physical arrangement whereby a water system is connected, directly or indirectly, with any other water supply system, sewer, drain, plumbing fixture or other device which contains or may contain contaminated water.

8-3.11 Disinfectant. Any oxidant including, but not limited to, chlorine, chlorine dioxide, chloramines, and ozone added to any part of the treatment or distribution process for the purpose of killing or inactivating pathogenic microorganisms.

8-3.12 Disinfection Byproducts (DBP). Disinfection byproducts are contaminants created when chemicals in source water and the distribution system react with disinfectants.

8-3.13 Injection Well. A well (depth is greater than the largest surface dimension) into which fluids are being injected.

8-3.14 Lead Free. Solders and flux are considered lead free if they contain not more than 0.2 percent lead; pipes and fittings are considered lead free if the lead content is not more than 8.0 percent

8-3.15 Lead Service Line. A service line made of lead that connects the water main to the building inlet and any lead pigtail, gooseneck, or other fitting that is connected to such lead line.

8-3.16 Maximum Contaminant Level (MCL). The maximum permissible level of a contaminant in water that is delivered to any user of a PWS.

8-3.17 Maximum Contaminant Level Goal (MCLG). The maximum level of a contaminant in drinking water at which no known or anticipated adverse effect on the health of persons would occur and that allows an adequate margin of safety. Maximum contaminant level goals are non-enforceable health goals.

8-3.18 Non-Community Water System. A non-community water system is a public water system that is not a community water system. There are two kinds of non-community water systems: transient and non-transient.

8-3.19 Non-Transient, Non-Community Water System (NTNCWS). A PWS that is not a community water system and that regularly serves at least 25 of the same persons over 6 months per year.

8-3.20 Permitted PWS. A public water system that has been issued a permit or other formal authorization to operate (i.e. it has been issued a public water system identification number).

8-3.21 Point-Of-Entry (POE) Treatment Device. A treatment device applied to the drinking water entering a building for the purpose of reducing contaminants in the drinking water distributed throughout the building.

8-3.22 Point-Of-Use (POU) Treatment Device. A treatment device applied to a single tap for the purpose of reducing contaminants in drinking water at that one tap.

8-3.23 Public Water System (PWS). A system for the provision to the public of water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service

connections or regularly serves an average of at least 25 individuals at least 60 days out of the year. Such term includes:

- a. Any collection, treatment, storage and distribution facilities under control of the operator of such system and used primarily in connection with such system, and
- b. Any collection or pretreatment storage facilities not under such control, used primarily in connection with such system.

A PWS is either a community water system or a non-community water system. Figure 8-1 is provided to help installations determine what type of system they operate.

8-3.24 Sanitary Survey. An on-site review of the water sources, facilities, equipment, operation and maintenance of a PWS for the purpose of evaluating the adequacy of such sources, facilities, equipment, operation and maintenance for producing and distributing safe drinking water.

8-3.25 Selling Water. There is no definition of “selling water” in the Safe Drinking Water Act. Please see discussion under section 8-4.1.

8-3.26 Service Connection. The opening, including all fittings and appurtenances, at the water main through which water is supplied to the user.

8-3.27 Source Water Assessment Program. Under the SDWA Amendments of 1996, states were required to develop, by Feb. 6, 1999, comprehensive Source Water Assessment Programs (SWAP) that delineate source water protection areas, inventory significant contaminants in these areas, and determine the susceptibility of each public water supply to contamination.

8-3.28 Source Water Protection Program. State efforts to manage identified sources of contamination in a manner that will protect drinking water supplies, based on the SWAP.

8-3.29 Source Water Vulnerability Assessment. A study used to determine the likelihood that potential contaminant sources in a watershed or drinking water protection area will degrade the public water system’s source water quality.

8-3.30 Supplier of Water. Any person who owns or operates a PWS. Under the SDWA a person is defined as an individual; corporation; company; association; partnership; municipality; or State, Federal or tribal agency.

8-3.31 Transient, Non-Community Water System (TNCWS). A non-community water system that does not regularly serve at least 25 of the same persons over 6 months per year.

8-3.32 Turbidity. The measurement of the amount of light scattered by colloidal, suspended matter in liquid. Elevated turbidity in drinking water may be indicative of water quality problems.

8-3.33 Underground Injection. Well injection, meaning the subsurface emplacement of fluids through a bored, drilled, or driven well or through a dug well where the depth of the dug well is greater than the largest surface dimension (see reference (a)).

8-3.34 Well. A bored, drilled or driven shaft, or a dug hole, whose depth is greater than the largest surface dimension.

8-3.35 Wellhead Protection Program. A program to protect groundwater that supplies wells and well fields that contribute drinking water to public water supply systems.

8-4 Requirements

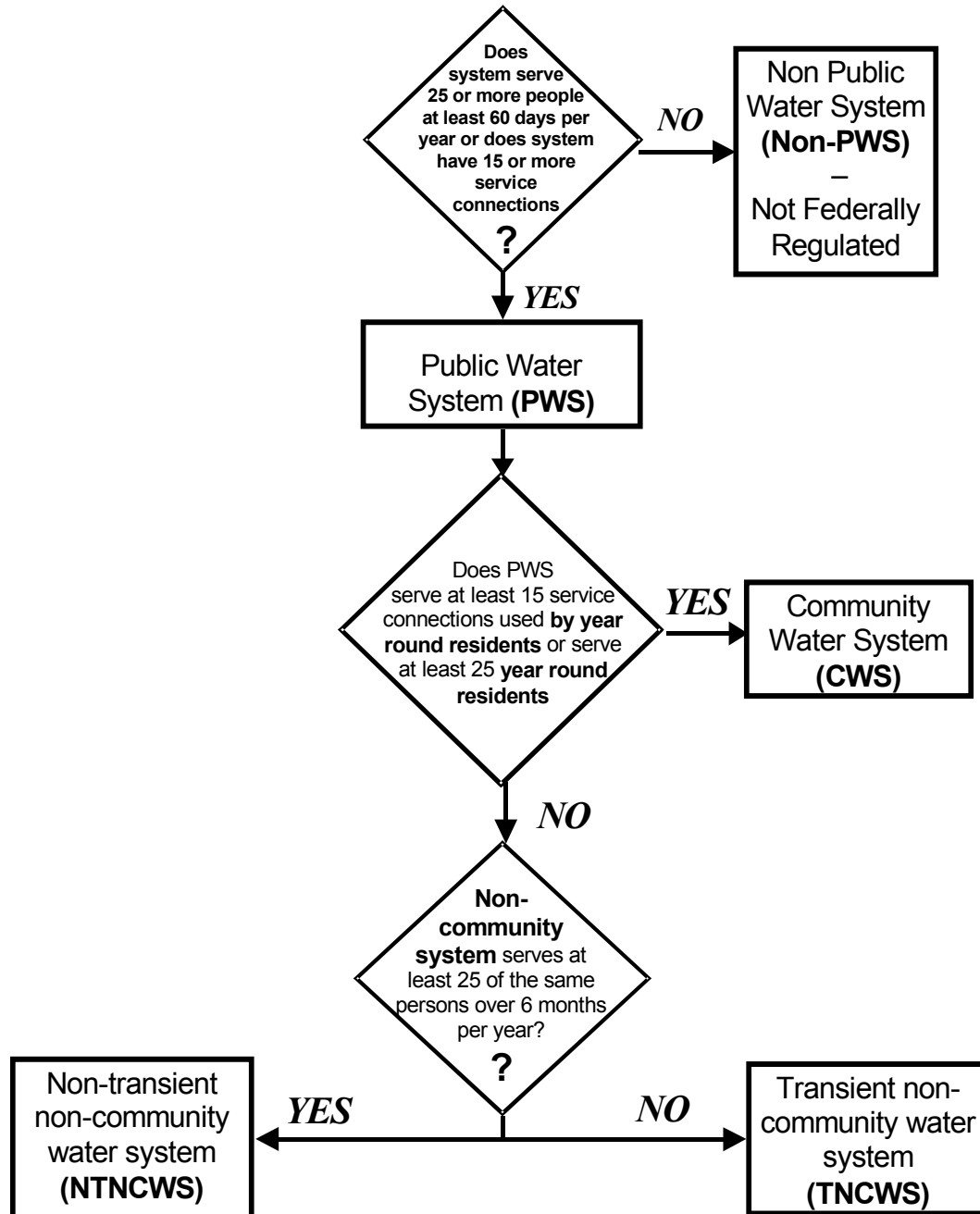
8-4.1 General. Regulatory requirements for water systems vary depending on the type of water system under consideration. However, Navy water systems must comply with all applicable Federal, State, and local regulations, executive orders and Navy policy. Water systems are initially classified as public water systems (PWS) or non-public water systems (Non-PWS). Federal, State, and local regulations for determining compliance with the SDWA generally apply to PWSs but are not applicable to Non-PWSs. Regulatory requirements for each PWS depend on the classification of the system (i.e. primary or consecutive, community water system (CWS) or non-community water system, transient non-community water system (TNCWS) or non-transient non-community water system (NTNCWS)) and the type of source water used (i.e. groundwater, surface water or groundwater under the direct influence of surface water). To determine the type of water system you are operating, refer to Terms and Definitions in Section 8-3 and Figure 8-1.

Consecutive PWSs generally are not subject to the requirements of the SDWA if they satisfy all of the following criteria specified in 40 CFR 141.3:

- a. Consist only of distribution and storage facilities and do not have any collection and treatment facilities;
- b. Obtain all their water from but are not owned or operated by a PWS to which the regulations apply;
- c. Do not sell water to any persons, and;
- d. Are not carriers that convey passengers in interstate commerce.

There is no definition of “selling water” in the Safe Drinking Water Act. However, an EPA Office of Groundwater and Drinking Water Memo dated March 13, 1998 defines selling water as follows: “A distributor of water for human consumption “sells” water within the meaning of the Act if it charges consumers for the water as a separate item or bills separately for the water it provides (House Report No. 93-1185). Conversely, if the entity includes charges for water in the rental fee, then it is not selling water within the context of the Act. ” The Navy does not consider reimbursement for the following as selling water: (1) distribution system maintenance costs, and (2) water from one federal entity to another, as this is merely an internal allocation of funds within the executive branch. The EPA definition set out above would apply to non-federal consumers including banks, credit unions, private companies, and restaurants to which Navy distributes water.

Water System Classification Flowchart^{1,2}



- (1) In accordance with Federal laws, State & local laws may be more stringent.
(2) Does not address regulatory requirements of consecutive water systems.
This is determined independently by each state.

Figure 8-1

If a consecutive PWS does not satisfy all of the above exemption criteria specified under 40 CFR 141.3, it may still be exempted from some regulatory requirements based on the fact that it obtains all of its water from another regulated PWS. This exemption criteria is addressed in 40 CFR 141.29. In general, the consecutive PWS would, at a minimum be required to comply with requirements pertaining to those contaminants which could be contributed by the consecutive PWS distribution system downstream of the point of connection to the regulated PWS.

Any modified monitoring would be conducted under a schedule specified by the applicable State regulatory agency and concurred in by the administrator of the U.S. Environmental Protection Agency. Information on Federal EPA Regulations can be found at: <http://www.epa.gov/safewater/>. In general States are responsible for implementation of SDWA programs. A directory of State water programs can be found at: <http://www.awwa.org/statinfo.htm>

Installations shall use laboratories certified by EPA or the cognizant State to perform all PWS SDWA compliance sample analyses. Except for required entry point samples (i.e., turbidity and fluoride), installations must collect water samples at points that represent the quality of water in the distribution system. Chapter 25 provides Navy policy regarding sampling and testing protocols.

8-4.2 Regulations. This section highlights existing and future SDWA regulations that are most relevant to Navy installations. More information on regulations and a compliance calendar can be found on the EPA Web Page: <http://www.epa.gov/safewater/>

a. **National Primary Drinking Water Regulations.** National Primary Drinking Water Regulations (NPDWR) or primary standards are legally enforceable standards that apply to public water systems. Primary standards protect drinking water quality by limiting the levels of specific contaminants that can adversely affect public health and are known or anticipated to occur in water. There are set standards for the following groups of contaminants: Inorganics, Organics, Total coliforms, Disinfectants and Disinfection Byproducts and Radionuclides. A table listing all contaminants and standards can be found at (<http://www.epa.gov/safewater/mcl.html>)

For each contaminant so identified, EPA establishes a “maximum contaminant level” (MCL), a treatment technique, or an action level. Where feasible, this MCL, treatment technique or action level has been used to establish the National Primary Drinking Water Regulation (NPDWR) for the contaminant. Once issued, NPDWR are mandatory for all PWSs. The Act also requires EPA to identify “maximum contaminant level goals” (MCLGs), which are non-enforceable goals for contaminants that may have an adverse effect on human health and are known or anticipated to occur in PWSs. The goal of the Safe Drinking Water Act is to move towards implementing these MCLGs when possible.

(1) **Arsenic Rule.** The EPA is reducing the current 50 parts per billion (ppb) standard. EPA published a new standard of 10 ppb in January of 2001. This standard was finalized in October of 2001. Water systems must comply with this standard by January 2006.

(2) **Radon Rule.** In November of 1999 EPA proposed new standards for Radon in drinking water. This Rule will apply to CWSs that use ground water or a mixture of ground water and surface water. A major provision of the proposal is the option to implement a multimedia mitigation program.

(3) **Radionuclides Rule.** In December of 2000 EPA updated standards for radionuclides in drinking water. EPA also set a new standard for uranium. The standards are: combined radium 226/228 (5 pCi/L); beta emitters (4 mrems); gross alpha standard (15 pCi/L); and uranium (30 µg/L).

(4) **Total Coliform Rule.** This rule sets requirements for coliform levels in drinking water. Coliform bacteria in drinking water indicate that the treatment system is not working or that there are problems in the distribution system. Bacteriological contamination of the drinking water system typically results in gastrointestinal problems. However, in some cases, more serious illness or death can result. EPA standards require that systems detect coliforms in no more than 5 percent of samples taken each month. The minimum number of samples a system must take depends on system size and is outlined in 40 CFR 141.21.

(5) **Surface Water Treatment Rule.** The objective of this rule is to prevent waterborne diseases caused by viruses, Legionella, and Giardia Lamblia. The rule requires that water systems using surface water and ground water under the direct influence (GWUDI) provide filtration and disinfection. Under certain criteria the filtration requirement can be waived, however there are no exceptions to the disinfection requirement.

(a) **Interim Enhanced Surface Water Treatment Rule.** This Rule becomes effective January 1, 2002. The rule strengthens filter turbidity performance and monitoring requirements in order to optimize treatment reliability. An overall goal of this rule is to minimize levels of Cryptosporidium in finished water. The Rule applies to public water systems serving at least 10,000 people that use surface water or ground water under the direct influence of surface water. The Rule also requires states to conduct sanitary surveys for all surface water and GWUDI systems, including those that serve fewer than 10,000 people.

(b) **Filter Backwash Recycle Rule.** Regulated entities must comply with this rule starting December 8, 2003. This Rule applies to all public water systems that use surface water or ground water under the direct influence of surface water; utilize direct or conventional filtration processes; and recycle spent filter backwash water, sludge thickener supernatant, or liquids from dewatering processes. Recycle systems will be required to return spent filter backwash water, thickener supernatant, and liquids from dewatering process prior to the point of primary coagulant addition unless the State specifies an alternative location

(c) **Long-Term 1 Enhanced Surface Water Treatment Rule.** This Rule is being finalized. The rule will apply to public water systems using surface water or ground water under the direct influence of surface water. This rule proposes to extend protections against Cryptosporidium and other disease-causing microbes to water systems that serve fewer than 10,000 people annually.

(d) **Long-Term 2 Enhanced Surface Water Treatment Rule.** This Rule is in the development phase. The intent of the rule making process is to develop requirements that will further protect the public from microbial contaminants.

(6) **Groundwater Rule.** This Rule is expected to be final in 2002. The purpose of this rule is to prevent microbial contamination of drinking water systems that use groundwater. As proposed, the rule will require sanitary surveys be conducted by the State every 3 years for community water systems

and every 5 years for non-community water systems. The proposed rule contains additional requirements such as hydro geologic sensitivity assessment and enhanced source water monitoring for certain systems.

(7) **Disinfectant/ Disinfection By-Products and the Trihalomethane Rule.** A CWS that serves at least 10,000 people and adds a disinfectant in any part of the treatment system must comply with the Total Trihalomethane Rule. This Rule set an interim MCL for total trihalomethanes (TTHM) of 0.10 mg/l as an annual average. The Disinfectant/Disinfection By-Product Rule, Stage 1 and 2, will replace this Rule.

(a) **Stage 1 Disinfectant/ Disinfection By-Product Rule.** This Rule applies to all community water systems and no transient non-community water systems that use a chemical disinfectant in any part of their system. Maximum Residual Disinfectant Levels (MRDLs) are established for disinfection using chlorine, chloramine and chlorine dioxide. Maximum contaminant levels are established for the disinfection by-products total trihalomethanes, haloacetic acids, chlorite and bromate. The compliance deadline for large systems is January 2002. For small systems the compliance deadline is January 2004.

(b) **Stage 2 Disinfectant/ Disinfection By Product Rule.** This Rule is in the development phase. The intent of the rule making process is to develop requirements that will further protect the public from disinfectant residuals and disinfection by products. EPA is required to finalize this Rule by May 2002.

(8) **Consumer Confidence Reporting Rule.** Community water systems shall prepare and provide to their consumers annual reports on the quality of the water delivered by the system. The reports must be delivered by 1 July on an annual basis. Each report must contain data collected during, or prior to, the previous calendar year. Requirements are outlined in 40 CFR 141.151 through 141.155 and reference (b).

Each community water system shall deliver one copy of the consumer confidence report (CCR) to each of its customers. States may waive the mailing requirement for community water systems serving fewer than 10,000 persons. In such cases, systems would be required to inform their customers that the report will not be mailed, make the report available on request to the public, and publish the report annually in one or more local newspapers serving the areas in which the systems' customers are located. Alternative delivery methods should be used to make a "good faith" effort to reach consumers who do not receive water bills. A good faith effort would include a mix of methods appropriate to the particular system. In states with primary enforcement authority, utilities must mail a copy of the completed CCR to the State, followed, within 3 months, by a certification that the report has been distributed to customers and that the information in the CCR is correct.

(9) **Unregulated Contaminant Monitoring Rule.** Large PWS and some small PWSs are required to collect data on a selection of unregulated contaminants. This Rule has two phases; List 1 and List 2. Data from this monitoring will be used in future rule making.

(10) **Public Notification.** In May of 2000 EPA updated the Public Notification Rule. The new Rule has a three-tiered notification system. The owner or operator of a PWS that fails to comply with an applicable MCL, treatment technique, or that fails to comply with the requirements of any schedule prescribed under a variance or exemption, shall notify persons served by the system. The notices shall

include specific language about the health effects of each contaminant. The PWS shall publish notices by newspaper, mail delivery, hand delivery, radio, and television announcements depending upon the type of violation or risk involved.

(11) **Lead and Copper Rule** PWSs at Navy installations shall comply with all applicable requirements for the control of lead and copper, as stated in the Federal Lead and Copper Rule (LCR) (see Subpart I of reference (c)). This is to ensure that the levels of lead and copper remain below the levels associated with health risks in treated (finished) water and at the consumer's free flowing tap. Per reference (c) and if approved by the State Regulatory Agency or EPA (whichever has primacy), shore installations may combine their consecutive PWSs monitoring plan as part of the supplier's plan, instead of treating each as a separate system. In January of 2000 EPA published minor revisions to the Lead and Copper Rule.

The lead action level is exceeded if the concentration of lead in more than 10 percent of tap water samples collected during any monitoring period conducted per reference (c) is greater than 0.015 mg/L (i.e., if the 90th percentile lead level is greater than 0.015 mg/L). The copper action level is exceeded if concentrations of copper in more than 10 percent of tap water samples collected during any monitoring period conducted per reference (c) is greater than 1.3 mg/L (i.e., if the 90th percentile copper level is greater than 1.3 mg/L).

As specified in reference (c), if an action level is exceeded, installation PWSs must collect additional water quality parameter samples. Optimal corrosion control treatment may also be required. Should prescribed treatment options fail to bring lead levels below the action level, lead service lines may have to be replaced.

Water systems that meet the lead and copper action levels during specified monitoring periods may reduce the number and frequency of sampling in accordance with reference (c).

(a) **Lead Containing Pipe, Solder, Fixtures, Fittings and Flux.** Section 1417(a)(1) of the SDWA requires the use of lead free pipe, fixtures, fittings, solder, or flux in the installation or repair of any system for the provision of piped water for human consumption. Plumbing fittings and fixtures such as faucets and water coolers intended by the manufacturer to dispense water for human ingestion shall be in compliance with standards established in 42 U.S.C. 300g-6(e). In 1998 an amendment to the SDWA known as the Lead Contamination Control Act (P.L. 100-572) became law. This amendment requires testing and corrective action for lead contamination in drinking water in schools and day care centers.

(12) **Cross-Connection and Backflow Prevention.** Cross-connection control programs apply to building interior domestic plumbing systems, fire protection plumbing systems, and exterior water distribution systems. These programs, overseen by States with SDWA primacy, help ensure compliance with primary and secondary drinking water standards by establishing policy, procedures, and instructions for installing, repairing, maintaining, inspecting, and testing backflow preventers. Reference (d) provides guidance to Navy installations for complying with this requirement.

(13) **Source Water Assessment and Source Water Protection Programs.** The SDWA Amendments of 1996 required all States to establish Source Water Assessment Programs (SWAP) and submit plans to the Environmental Protection Agency (EPA) by February 6, 1999 detailing how they would delineate source water protection areas, inventory significant contaminants in these areas, and

determine the susceptibility of each public water supply to contamination. The States have up to 2 years after EPA program approval to complete the source water assessments.

(14) **Operator Certification.** The 1996 Amendments to the SDWA requires states to develop operator certification programs. Specifically these programs must specify minimum standards for operators of community and non-transient, non-community public water systems. Details include provisions for certification, re-certification and grandfathering.

(15) **Recordkeeping.** Maintain records showing monthly operating reports for at least 5 years, and records of bacteriological results for not less than 5 years, and chemical results for not less than 10 years. Lead and copper monitoring results must be kept for at least 12 years.

b. **National Secondary Drinking Water Regulations.** For contaminants that may cause the drinking water to become aesthetically unpleasing, the Act requires EPA to specify the maximum contaminant level requisite to protect the public welfare. These contaminants are regulated under the National Secondary Drinking Water Regulations (NSDWR). Although they are not Federally enforceable, several State SDWA programs provide for enforcement of National Secondary Drinking Water Regulations. If the State enforces NSDWRs then Navy activities shall comply.

c. **Underground Injection Program.** The SDWA requires each State to have an Underground Injection Control Program (UICP) to ensure that underground injection does not endanger underground sources of drinking water. All groundwater injection systems must be permitted or (authorized by rule). Under these requirements, installations must implement a program that includes:

- (1) Establishing and maintaining an underground injection well inventory.
- (2) Procedures for proper well closure.

There are five classes of UIC wells. The broadest category is Class V, which includes things such as French drains and some septic systems.

d. **Wellhead Protection Program.** Installations that receive drinking water from wells must take measures to minimize contamination. These installations shall establish a wellhead protection program that meets applicable State or local wellhead protection requirements

8-5 Navy Policy

8-5.1 General. Navy installations operating water systems shall comply with all applicable Federal, State, and local safe drinking water regulations, executive orders and Navy policy. Navy policy provides additional protection to consumers.

8-5.2 Water System Monitoring. Navy installations that own and operate a consecutive PWS subject to full or partial exemption from regulatory monitoring requirements under 40 CFR 141.3 or 141.29, respectively, shall submit a letter to the State regulatory agency explaining the degree to which exemption criteria are applicable and request the exact requirements to be imposed on the consecutive PWS. The State's response letter is to be permanently retained in Navy files.

Navy water systems will, at a minimum, accomplish the monitoring described in the following sections. This monitoring is required regardless of variance or exemptions from regulatory monitoring requirements. Sampling and testing shall comply with chapter 25 requirements.

a. **Bacteriological Monitoring.** Navy PWSs shall perform bacteriological monitoring as specified in the Total Coliform Rule at 40 CFR 141.21. Consecutive non-community water systems may request waivers from this requirement. Waivers shall be submitted by claimants to CNO for approval. The use of EPA-approved kits by training personnel is acceptable for Navy policy total coliform analyses. However, if a sample tests positive, follow up analysis must be accomplished using a certified laboratory.

b. **Asbestos.** All Navy water systems with asbestos cement pipes shall monitor for asbestos. At a minimum one sample shall be taken every three years.

c. **Disinfection By-Products.** Navy CWSs shall monitor for disinfection by-products. Systems shall monitor as directed in 40 CFR 141.132.

d. **Lead in Priority Areas.** All Navy installations shall sample, test, and maintain resultant records for all drinking water coolers and outlets in the following priority areas to determine the presence of lead: primary and secondary schools, day care centers, hospital pediatric wards, maternity wards, and food preparation areas located on medical facilities. References (e) and (f) provide program information including rationale and sampling protocols. If initial screening results exceed 20 ppb in 250-mL samples, installations shall use full protocol sampling on affected outlets. If full protocol sampling exceeds 20 ppb, they shall secure the affected water outlets from service and institute permanent corrective measures.

A copy of all test results shall be made available for all schools, day care centers, and medical facilities where testing has been conducted. A notice of availability of the testing results shall be sent to the parents or legal guardians of children attending the affected school.

e. **Lead and Copper in Water Systems.** Navy consecutive PWSs that serve family housing and were not included in the primary system sampling pool (at the time the primary system performed Lead and Copper Rule monitoring) for lead and copper shall sample for lead and copper. Installations shall ensure the number and location of samples are sufficient to be representative of the system and in conformance with Lead and Copper Rule procedures.

This requirement can be waived if Navy installations operating consecutive PWS water systems document that their water supplier passed its Lead and Copper Rule monitoring and that the water being supplied to them is non-corrosive. A formal waiver does not need to be submitted but documentation must be maintained in drinking water program records.

f. **Review of Primary PWS Records.** Consecutive PWSs shall, at least once a year, review the monitoring reports of the primary PWS. Installations shall use these reports, and other sources of information, to determine the risk of water quality deterioration within the distribution system. Installations shall ensure that water quality has not degraded above the MCL for parameters within the distribution system.

8-5.3 Cross-Connection Control and Backflow Prevention Program Implementation. All shore installations that own or operate a water system shall develop and implement a Cross-Connection Control

and Backflow Prevention Program. At a minimum, the cross-connection control and backflow prevention program shall include procedures and mechanisms to:

- a. Find and eliminate existing cross-connections and prevent new cross-connections.
- b. When cross-connections cannot be eliminated, install, inspect, and test backflow preventers.
- c. Keep an inventory of all existing backflow preventers.
- d. Certify all backflow preventers as required by the regulatory agency. If there is no regulatory requirement, then all backflow preventers should be certified at least once every 6 months for high hazards and once every 12 months for low hazards by a certified inspector.
- e. Promptly repair or replace defective backflow preventers. Retain cross connection and backflow preventer inspection and maintenance records for at least 5 years.

Reference (d) provides guidance to Navy installations for complying with this requirement.

8-5.4 Sanitary Surveys. In many instances, a State may require treatment plants or PWSs that are experiencing compliance problems, particularly with microbial pathogens, to perform a sanitary survey. The State regulatory agency will usually perform the survey. If the State allows, the installation can use a service provider of choice to complete the survey. In the absence of a State requirement, all Navy PWSs shall perform a sanitary survey every 5 years.

- a. **Survey Requirements.** For treatment plants, the survey should include the following:
 - (1) Verification and reevaluation of vulnerability assessments, watershed protection programs, and wellhead protection programs, as applicable.
 - (2) Examination of the source water physical components and condition.
 - (3) Schematic diagrams of the treatment process and examination and evaluation of the adequacy and appropriateness of all elements of the current treatment process, including an assessment of operational flows versus treatment process rated capacity and, where appropriate, CT assessment (CT is defined in 40 CFR 141.2).
 - (4) Examination and evaluation of the operation and maintenance of the treatment facility including the condition and reliability of equipment, operator qualifications, use of approved chemicals, record keeping, process control, and safety programs.
 - (5) Evaluation of the ability of the treatment plant to respond to changes in raw water fluctuations.
 - (6) Evaluation of the treatment plant's emergency power supply and security measures.
- b. **Distribution System Sanitary Survey Review.** Concerning the distribution system, the sanitary survey should include a review of the operations and maintenance program to ensure attention to the following areas of concern:

- (1) Elimination of unneeded or excess storage.
- (2) Adequate turnover of storage tanks.
- (3) Storage tank cleaning and maintenance.
- (4) Adequate disinfection practices during all main repairs and replacement.
- (5) If applicable, an effective corrosion control program.
- (6) A comprehensive cross connection control program.
- (7) An aggressive valve and hydrant exercise program.
- (8) An adequate water quality monitoring program that achieves compliance with the appropriate regulations and provides for effective water quality control.
- (9) An adequate flushing program, preferably a Unidirectional Flushing (UDF) program that is implemented on a yearly basis.

For more information on sanitary surveys, see reference (g).

8-5.5 Record Keeping. In the absence of more stringent Federal, State, or local record keeping requirements, shore installations shall maintain records as follows:

- a. Bacteriological Results - 5 years.
- b. Chemical Results - 10 years.
- c. Lead/Copper testing results - 12 years.
- d. Actions Taken to Correct Violations- 3 years after acting on the particular violation involved.
- e. Sanitary Survey Reports - 10 years.
- f. Variance or Exemption Records - 5 years following the expiration of such variance or exemption.
- g. Water Treatment plant and/or Distribution System Operating Records – 5 years.
- h. Cross Connection Inspection Records – 5 years.
- i. Consumer Confidence Reports – 5 years.

8-5.6 Water Conservation. Water is a limited but recyclable resource. Navy installations shall, when economically practicable, implement water conservation programs to include:

- a. Installation of water efficient industrial equipment and recycling of industrial process water.
- b. Low flow showers, toilets, faucets and other devices where applicable.
- c. Timely repairs of water service line leaks and main breaks.
- d. Routine leak detection surveys.

See references (h) and (i) for additional guidance.

8-5.7 Exemption from Permitting. Navy installations that qualify for exemption from PWS permitting shall apply, in writing, to the regulatory agency with SDWA primacy for an exemption. In some cases regulators issue a permit when it is not required.

8-5.8 Operation and Maintenance. Installations that own and/or operate water systems (public and non-public, permitted and non-permitted) shall develop and implement an operation and maintenance program applicable to the system. Minimum requirements of the program are to meet the requirements of reference (c), in particular 40 CFR 141 paragraph 141.63(d)(3), and include the proper implementation and documentation of:

- a. Emergency and preventive maintenance.
- b. System disinfection after maintenance work is performed.
- c. Scheduled flushing of the system.
- d. Reduction of water quality problems (as needed).
- e. Implementation and documentation of a valve exercise and maintenance program.
- f. Proper operation and maintenance of storage tanks.
- g. Maintenance of current water distribution maps.
- h. Documentation of location and dates of water line breakage.
- i. Documentation of emergency operations procedures required as a result of events such as earthquakes, hurricanes, chemical releases and terrorist activities. Determine response roles and responsibilities as well as contingency plans for providing potable water to the Navy installation. Reference (j) provides information on emergency planning.

8-5.9 Consumer Confidence Reports. Navy consecutive CWSs shall obtain a copy of their water suppliers CCR and amend this report with information on any additional testing or exceedances and then distribute to consumers. For exceedances, only report data based on certified laboratory results. A good faith effort shall be made to ensure that all consumers are aware of the CCR and additional information. Recommended methods of report delivery include mailing to each housing unit, publishing in the command newspaper, posting on a web site, and posting in conspicuous locations in each building on the installation.

8-5.10 Consumptive Use Permits. In coordination with legal and technical staff at the claimant and appropriate regional commander, installations that withdraw groundwater shall:

- a. Document historical water use;
- b. Determine reasonable foreseeable future water uses;
- c. Evaluate water rights laws;
- d. Determine on a case by case basis whether the installation should obtain a consumptive use permit; and
- e. Ensure, if applying for a consumptive use permit, that restrictions will not impact mission requirements.

8-5.11 Training

a. **General.** All Navy personnel involved in the drinking water program shall receive appropriate environmental training, refer to Chapter 24 for detailed information.

b. **Water Treatment and Distribution System Operators.** Installations shall ensure their water treatment and distribution system operators are trained and certified per applicable Federal, State, and local regulations. Training should include the following elements:

- (1) Basic water plant and/or distribution system design.
- (2) Basic water plant and/or distribution system operation.
- (3) Basic maintenance and calibration of plant controls and equipment.
- (4) Water plant and/or distribution systems treatment principles, including chemical storage and handling.
- (5) Water sampling and analysis.
- (6) Water plant and/or distribution system documentation and reporting requirements.
- (7) Cross-connection control and backflow prevention.

8-5.12 Fines and Penalties. The 1996 amendments to the SDWA waive sovereign immunity for the payment of fines and penalties imposed by Federal, State or local agencies for violations. In addition, EPA may assess administrative penalties of up to \$25,000 per day per violation.

8-6 Responsibilities

8-6.1 CNO (N45) shall:

- a. Coordinate the overall implementation of SDWA requirements.
- b. Issue policy and guidance as needed.
- c. Act as the assessment sponsor for SDWA projects.
- d. Approve or disapprove monitoring waivers for bacteriological sampling by Navy consecutive non-community water systems.

8-6.2 COMNAVFACENGCOM (HQ, EFDs, EFAs and NFESC) shall:

- a. Assist CNO (N45) in providing Navy-wide guidance regarding matters relating to drinking water .
- b. Provide engineering, contracting, and legal assistance, upon request, to major claimants and installations.
- c. Maintain drinking water information systems.

8-6.3 Chief, Bureau of Medicine (CHBUMED) shall:

- a. Establish and publish appropriate standards of water quality and monitoring requirements for Navy water systems ashore, afloat and in the field.
- b. Provide health-related advice to Navy commands in carrying out their responsibilities for drinking water quality and distribution.

8-6.4 Regional Environmental Coordinators shall:

- a. Provide coordination and assistance to installations within the applicable region regarding implementation of this chapter.
- b. Assist claimants with resolution of issues and communication with CNO (N45) and Federal, State, and local regulators.

8-6.5 Major claimants shall:

- a. Implement the SDWA program requirements at their shore installations.
- b. Plan, program, budget, and provide funding for current and future requirements of the SDWA, state and local regulations, and applicable executive orders.

8-6.6 Commanding Officers (COs) Or Officers in Charge (OICs) of shore installations shall

- a. Ensure that the installation is in compliance with all Federal, State and local regulations, executive orders and Navy policy pertaining to drinking water. This includes planning, programming and budgeting resources to meet requirements.
- b. Ensure contracts between the Navy and water suppliers require the supplier to supply the results of all permit required National Primary Drinking Water Regulation (NPDWR) monitoring that was performed on raw and treated water that serves the applicable Navy installation and/or activity at least once a year.
- c. Ensure that all personnel involved in the drinking water program are properly trained.